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ABSTRACT

Described are the principles and procedures of Project ADVANCE (Alternate Design for Vocational and Necessary Cognitive Education), a behavior modification program for severely emotionally disturbed children (14 to 20 years old). Among program components are contingency management contracts, a highly structured token economy, the educational team concept, peer programing, and focus on self-social survival skills. It is noted that generalization of skills is developed by promoting a variety of stimulus situations. A paper titled "Rationale--The Incompatible Use of Sugar Items as Consumable Reinforcers in the Behavior Modification Management System at Project ADVANCE" is included. (SBH)

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EMOTIONAL DISTURBANCE: A BEHAVIOR MODIFICATION MANAGEMENT MODEL

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Contingencies Necessary for Generalization as a Function of Behavior Modification Systems with Emotionally Disturbed Youngsters

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Running Head: Generalization Contingencies

Contingencies Necessary for Generalization as a Function of Behavior Modification Systems with Emotionally Disturbed Youngsters

It is well known that if a behaviorly deficient child has been seen in more than one clinic, he is very likely to have been given more than one diagnosis. He could, in fact, have a record containing several theoretically incompatible diagnoses: schizophrenic, autism, brain damage, retardation, emotionally disturbed for example. One factor that relates to this is that the published guidelines for diagnosing children in these various categories are not uniform and the difficulty stems partly from the fact that there is considerable behavioral overlap between these various kinds of youngsters. The reason for using the diagnosis in the first place is that it tells us the reasons behind the child's present problem. Such differential etiologies in treatment outcomes justify the use of distinctive diagnostic terms. But, such a degree of behavioral specificity has not yet been shown to exist in certain classifications, such as: schizophrenic autistic, psychotic, emotionally disturbed. In practice, these categories fail to convey any precise information about etiology or prognosis.

It is interesting to note that the particular treatment that psycho-dynamically oriented theorists have prescribed, say for autistic children, appears not to differ substantially from the

prescribed treatment of that for schizophrenic children or for psychotic children in general. Multiplication of different kinds of psychotic children on paper according to various assumptions about etiology and prognosis has had little if no practical impact on treatment considerations.

For the most part, behavior modification programs have been used with a variety of classified individuals who have a history of extensive academic and social failure. The number of applications of behavioral procedures and principles have greatly increased during the last decade. The Journal articles describing and evaluating these applications are mushrooming. It seems that there is little sign of abatement in the rapid pace of research in the behavior modification and behavioral therapy areas. Frequent criticism of behavior modification programs is their alleged failure to produce generalization. This usually means that what is learned in an original educational or training environment fails to occur in other dissimilar and not previously experienced situations. This treatment of adaptive behavior in a special learning situation is exciting and encouraging even without true understanding of etiological factors. However, if it is true that many behavior modification programs do fail to produce generalization, there is good reason for concern. Such a failure will require that the learner receive direct training in all the new and

varied settings that will be encountered. It is unlikely that sufficient staff, time and money and other resources will be available for large numbers of repeated educational or training experiences with each child.

Three general questions are considered when behavior modification techniques for prevention and modification of inappropriate behavior are desired, "What are some of the different ways that behavior modification has been used to prevent a modified delinquent behavior? How effective has it been? What implication does it have for the future?" However, the critical question in generalization is to identify procedures which may be used to modify an initial learning situation so that the same properties of a target behavior occur in diverse settings.

There are some basic underlying assumptions of theoretical constructs which must be understood. The first common assumption of these constructs is:

1. Inappropriate behavior is learned like appropriate behavior. (Ullman and Krasner 1965)

2. Deviate behavior can be changed through the use of appropriate reinforcement techniques. (Gagness, 1965, Herring and Philips in 1962)

3. A relationship exists between the behavior a child exhibits and his environment. This relationship can be de-

scribed as well as predicted if various components of the environment are known. (Harold 1963, Ullman and Krasner 1965)

4. The next assumption is the key one which disregards the etiology or the psychodynamic approach to treatment. That is, looking for causes of deviate behavior is counterproductive since the original cause of a given behavior is unlikely to be what is maintaining behavior at the present time. (Ullman and Krasner, 1965)

5. The development goodness of any theory rests on its demonstrability and its predictability. (Rhoads and Sagor, 1974)

6. Behavioral theory is "blackbox" theory with environmental input (stimuli) to the "blackbox"(individual) and outputs (responses) from the "blackbox", both are observed. (Rhoads and Sugor, 1974)

In Salem County New Jersey functioning under the Salem County Vocational Technical School District, there is a Behavior Modification Management approach to teaching emotionally disturbed youngsters. Project ADVANCE is an acronym for Alternate Design for Vocational and Necessary Cognitive Education. In the use of its Behavior Modification Management system, it has been discovered that the first issue of whether or not generalization can occur in behavior modification programs is related to the success of the students who are mainstreamed.

One central feature of this presentation relates to mainstreaming. Few mainstreaming models incorporate objective data which has reference to behavior in the consideration of mainstreaming especially where emotionally disturbed youngsters are involved. In its effort, Project ADVANCE concludes that while generalization seldom occurs as an automatic by-product of the program, it can occur as a result of direct programming and a contingency management system which relates to the total Behavior Modification Management system. This bears out the findings of Kazdin(1975) who concludes that there are possible facilitating strategies that one can incorporate to promote generalization. He suggests these particular strategies:

1. Substitute naturally occurring reinforcers in place of extraneous events which may have been used to change behavior initially.

2. Train relativesor other individuals in the client's environment to carry out the contingencies.

3. Gradually remove or fade the contingencies.

4. Vary the conditions in which training takes place.

5. Alter schedules of reinforcement.

6. Increase the delay of reinforcement.

7. Use self-control procedures.

The purpose of this presentation is to describe the

principles and procedures that have been utilized by Project ADVANCE in these strategies. We also attempt to evaluate the efficacy of these strategies and to provide a set of directions for administrators and teachers or other practitioners to use in facilitating generalization of the effects of Behavior Modification Programs. First, let me briefly describe the program setting. Project ADVANCE is a program in Salem County New Jersey for severely emotionally disturbed youngsters between 14 and 20 years old. Salem County is an urban-rural area with such noted industries as DuPont, B.F. Goodrich, General Motors, and other such industries are in close proximity to it. The County is located between the metropolitan areas of Wilmington and Philadelphia on the New Jersey side. Students are referred to Project ADVANCE by local Child Study Teams of five(5) secondary school districts. In some cases, referrals are made of students who have been classified recently within the home district and other times placement is recommended for classified students who have been placed in residential settings. Generally, a student's IEP describes a need for behavior modification, individualized instruction, small student/staff ratio. The staff consists of a Project Supervisor, Secretary, Crisis Coordinator/Counselor, three(3) teachers of the handicapped with experience working with Ed students, one(1) Pre-vocational Instructor, and three(3) Instructional Aides and One(1) Maintenance

Man. A Behavior Modification Consultant is also employed on a part-time basis to help manage the Behavior Modification system. Ancillary Services are provided by the District's Child Study Team.

Five(5) target behaviors were chosen at the beginning of the year, based on a survey of literature and an examination of student records for common behaviors. These five(5) behaviors are referred to as C.H.A.D.S., an acronym which generally denotes C- for cursing, H- for hitting, A- for leaving assigned area, D- for disrupting and S- sleeping or not staying on task. Of course these are short descriptions for broad behaviors. At the beginning, middle and end of the year, behaviors are baselined for frequency distributions by classroom, by individuals and by school. Each week, baseling information is also collected from individual classes and analyzed by the Behavior Modification Consultant. The instructional aide's responsibility, aside from assisting in individualized instruction, is to target behaviors and reward students for the non-display of certain behaviors. Youngsters are assigned to individual carrels of which they may decorate according to their own particular whim. These carrels provide a secure base for each student within the Project. After a student has been seated at his carrel, he receives one(1) point by the aide. Every 15 minutes, following this, he is given one(1) point of reach of the target behaviors not displayed within the 15 minute segment. These points are accumulated and may be

used to purchase consumable items. These items are at levels: Immediate, intermediate, and long range. In each student's carrel is two(2) charts. One chart describing the amount of points that he has earned each week in numerical figures and another chart which is a graphic representation of his weekly average. This latter chart is stratified such that it shows the average amount of points that is expected at the Project ADVANCE, and the average amount of points leading toward the mainstream of education. The chart numerically was constructed through the use of actual baselining of behaviors in residential settings, at Project ADVANCE, within the Vocational Technical District and each of its 26 occupational areas. This graph is made specifically to indicate the level at which a student should perform in order for consideration of placement to be made. The aide has a record of each student's contingency management contract which includes the baseline necessary for him to obtain to be considered for any of the occupational areas including his home school district. More specifically, each one of the C.H.A.D.S. is averaged in baseline. Student's average point gains may be consistent with a particular area where he must not have any significant discrepancies in any one of the C.H.A.D.S. For example, the student's point average may be good enough to enter both the Health Occupations Area or Building Trades cluster at the Henry D. Young Special Needs Center. However, the student's cursing(C.) may be high

where as disrupting the class may be extremely low. It may be that the student needs to reduce the C of his C.H.A.D.S. before he enters Health Occupations for cursing is a greater factor in success of that Program than in the Building Trades Area.

At mid-point of each day, students are allowed to make purchases from the store based on their bank accounts and the current status of points gain for the day. Students are encouraged to delay gratification to the extent that they seek long range items for purchase.

Any student who becomes disruptive in the classroom to the extent that the student to be referred out, is done so through referral by the teacher or the aide to the Crisis Counselor. The Crisis Counselor will in turn decide whether a student must enter the workroom. The workroom is manned by an instructional aide who supervises the workroom activity. The workroom provides for individual stalls where visual stimulation is at minimum. Students doing academic work can earn their way back into the classroom situation where they may earn points toward purchases. No points can be used during the workroom activities toward purchases for consumable items. A student who commits an offense which is worthy of temporary exclusion from the program will be externally suspended. Upon reentry into the program, the student must earn 60 points at a rate of 5 points every 15 minutes in academic work.

The curriculum is individualized and divided into com-

putational communications, social and survival skills, recreation activities and pre-vocational activities. Students are cycled by class during the morning session into the pre-vocational shop where points are earned at the same rate in the classroom. Students may purchase also additional projects or craft type projects while in the pre-vocational area provided that project is within the skill level that the student may be working. During the afternoon, students are awarded points on the basis of activities after participating in individual exercise drills. Students are awarded points on the basis of individualized skills in recreational activities. All games are individualized and competition is based on individuals performance matched against his own individual performance. There are not inter-student but intra-student competition. Points earned in the recreational component are used for the purchase of field trips based on student interest survey at three levels: high interest trips, historical tours and local trips within the community. These also serve as an evaluation for social living skills and survival skills when conducted.

In the afternoon, students may purchase various mini-courses which include arts and crafts, sewing, newspaper, auto mechanics, low organized games, reading, etc.

A student who has reached a point where he is able to recognize when he/she will become disruptive, may request time out.

This student is counseled by the Crisis Coordirator/Counselor and may be referred to the time out room where the student may be actively involved in gaining points toward the purchase of consumable items. The student is observed periodically through the two-way mirror glass by the Coordinator/Counselor. No student is permitted to be in the time out room more than one(1) hour. A teacher may also refer a student to the time out room if he/she becomes cognizant of various indicators of students inappropriate behavior.

This represents a basic description of the component. Now to discuss to some level of specificity the strategies which promote generalization and the efficacy of these. First of all, in the contingency modification contract, we agree with Kazdin. However, we also take it a step further. Rhoads(1974) mentions in his research of behavioral contracting that behavioral contracting differs from contractual analysis by its disregard of the inter-psychic and is a similar technique which schedules the exchange of positive reinforcement between two or more persons. The expectations of each part to the transactions must be clearly understood. Therefore, we believe a good contract fulfills five(5) requirements as Rhoads suggests:

1. The privileges each part expects for fulfilling the responsibilities.

2. The responsibilities essential for securing each privilege.

3. The system for sanctions for failure to meet these responsbilities.

4. A bonus clause

5. A feed back system to keep track of reinforcements given and received.

Because our contingency management contracts have within them the actual baseline behaviors of the classes that the students have goals to be mainstreamed, it presents a gradual withdrawl of reinforcement contingency as another means of facilitating response maintenance and transfer. As Kazdin in 1975 notes, "Withdrawing the contingencies, is a useful technique because it prepares the client for the conditions under which he must normally function." Thus, in the educational system that the students must be mainstreamed, the contingencies often are unsystematic and the consequences for performance delayed if present at all. Thus, the issue of contingency fading cannot be separted from that of substituting nature reinforcers as another method of achieving response maintenance. Naturally occurring reinforces are those events which are normal consequences of behavior. Thus, a student who is given a contingency management contract and is becoming gradually closer for reentry into the mainstream of education, the teacher and staff will gradually fade out extrinsic rewards for intrinsic rewards.

In reviewing the literature, we discover there are limited numbers of research reports available which demonstrates substitution of naturally occurring reinforcers as a method of promoting generalization and response maintenance. Hopkins (1968) taught a severely retarded child to smile contingent upon receiving candy reinforcement. Eventually, the candy was withdrawn while smiling behavior was maintained through attention received through others. In another report, a mildly retarded child was taught to use crutches through a task analysis skill sequence, (Horner, 1971).

Project ADVANCE uses a highly structured token economy for severely emotionally disturbed youth. Students could, of course, earn points for appropriate social behavior through the system previously described. However, in this token economy, a fading points condition is implemented. Point values are readjusted and points are delivered on an intermittent schedule. Gradually, the percentage of days in which a contingency is delivered, becomes reduced by 100% to 8% over an eight-month period. Appropriate behaviors are maintained at a consistently high level. Eventually, points are reduced to the use of a merit system where certain privileges and consumables are free and only social consequences supplied for the appropriate use of behavior. Continued good behavior in this fadeout process will result in entrance into one of the 7 occupation areas within the Henry D. Young

Vocational Center or within one of the 19 career occupational areas at the Vocational Technical Career Center. In some cases, reentry in the home school bound system begins where the youth can begin the gradual transition into his home school environment. It is our feeling that Project ADVANCE provides a viable model for other token programs to emmulate. A structured hierarchical reward system which corresponds to naturally occurring reinforcers is available to the youth. We recognize a major limitation of token programs is the excessive dependency many students develop in tangible reinforcers. Therefore, for a token economy to serve as an effective therapuetic program for emotionally disturbed youngsters, naturally reinforcers must gradually replace token reinforcers. It is obvious that considerable research is required to investigate optimal methods of programming the substitution of naturally reoccurring reinforcers into a child's environment. Fading reinforcement contingencies will not be sufficient to maintain fully developed behavior patterns unless the responses come under control of other powerful reinforcers which correspond to natural environmental conditions. Project ADVANCE constantly revises its approach to program development, for it realizes that a program which alleviates behavior problems only through an externally reinforcement system, must be viewed as only temporary or as an intermediate step toward an ultimate program objective of either self-control or naturalistic reinforcement control.

Another strategy that is incorporated in the Project ADVANCE Behavior Modification Management system is that of the"educational team concept." Based on educational strategies for the emotionally disturbed or behaviorally disordered in a book called, "Children in Conflict", Henry R. Reinert points out the educational team concept. The educational team is suggested as one concept for providing teachers with the support they need in the development of an educational program for all youngsters in the classroom. The educational team is similar to the diagnostic child study team concept in that it represents a group effort in problem solving. However, there are some specific differences in the conceptualization of the two systems. The Child Study Team which is often headed by the Director of Child Study or the Director of Special Child Services or Needs, because of the position held on the team. This is different from the educational team in that leadership emerges on the team and the members share on equal terms and discuss decision making. The membership is basically determined by the interest in and working with the youngster. The membership also is varied according to the interest and needs of each youngster. Unlike the Child Study Team, the team does not emphasize classification or diagnosis but emphasizes programmatic strategies to help the child succeed through the diagnostic prescription. The philosophy that sustains the educational team as Reinert puts it is that, "Schools have within

their walls, sufficient expertise to solve most of their educational and behavioral problems that need to be solved." Project ADVANCE realized a further advantage of using educational teams in its process because it fosters generalization of behavior modification. It allows the proliferation of behavior modification strategies to each one of the team members and provides for feedback and feedout. It also allows for the training of relatives and peers in the youngster's environment. Lovass,(1967) has noted that generalization and maintenance of behavior will occur only if parents utilize training principles in the youngster's day-to-day life. This means that parents, siblings, friends and others thay may come in contact with the child or youngster who has behavior problems must be trained as behavior managers. Individuals involved with deviate youngsters, require instructions in the assessment of problem behaviors, possible contributing factors in development of those behaviors and finally strategies designed to erradicate any inappropriate conduct while instituting more acceptable behavior. This successful behavior in parents in behavior modification techniques have been published recently by Berkowitz, Graciano(1972) and Odell in (1974)

In the area of social living skills, a recent study with deviate children, peer programming was compared with equating stimulus conditions, teacher training and a control group as methods to enhance generalization by Walker and Buckley(1974).

Peer programming and equating stimulus conditions were most influential in achieving generalization and maintenance of appropriate behavior. In this regard, Project ADVANCE allows youngsters involved in the recreational activities component in displaying appropriate behavior during the recreational activities series. Students are rewarded on the basis of the non-display of inappropriate behavior and points earned then are exchanged for a group reinforcement for the class through special field trips at three levels. Buckley's long-term follow-up in this area indicated that the subjects in peer programming conditions were able to maintain their success at a greater level than subjects in the other three conditions.

Survival Skills

There has been concern and questions in a literature about survival of self-management strategies in behavioral programs. Project ADVANCE, through its social living component, recognized the need of individuals to be self-reliant and indepdndent in natural envircnments and has made the teaching of self-management or survival skills an important tactic. Wehman(1973) found the use of self-social survival skills techniques serve to reduce the time and the tension required on the part of a personnel to identify and consequent behavior at least in clinical settings. Yet, we have found that the need for self-managerial skills even though it has been apparent the component behaviors and sequences which make

up this regularitory process, appear to be unclear in the literature. This is certainly true in the educational realm. Wehman notes that there is several reasons for the paucitity of literature dealing with self-management in the classroom. First, it is a definition of consideration. The terms self-management, self-regulation, self-control, survival skills have all been accepted in the literature as a unitary construct. Experimental research on the other hand, is dealt with the use of these applications in a functionally different manner. For example, Kazdin(1975), sees self-control as those behaviors an individual deliberately undertakes to achieve self-selected outcomes. However, in somewhat different vein, Thoresen and Mahoney(1972) conclude that an individual may be said to be engaging in self-control situations when, "In the relevant absenses of immediate external restraints, he engages in behavior whose previous probability has been less than that alternative available behavior." The training of self-management skills as the Project has experienced, related to motivational impediments. It is possible of course to motivate individuals by applying extrinsic reinforcement through an indeterminate level of time. Extrinsic reinforcement may consist of material goods or information regarding the progress regarding the individual's program. While the viability of extrinsic reinforcement for providing short-term motivation is apparent, it should be the goal of any management program to alternately fade out the extrinsic

contingencies and turn it into an internal reward system. It has been the contentions of the Project ADVANCE Staff that intrinsic reinforcements which training and self-management of social living techniques provide, can hope to be maintained only over long periods of time. The goal of the Project is to receive youngsters at 14 year old or 9th grade level and in this realization several management techniques may be utilized.

Finally, the Project engages itself in promoting a variety of stimulus situations. This usually includes introducing irrelevant or distracting stimuli using a variety of trainers or teachers increasing the size of the class and conducting the training in several different settings. Youngsters are involved in several related, but separate schemes of behavior modification management throughout the day. One includes the classroom setting. The other includes the recreational activities setting. Another includes mini-courses setting and the other includes the pre-vocational skills area settings. It is felt that the expansion of the set of the discriminative stimuli for target behavior is necessary if a youngster is to learn to perform the target behavior in a variety of settings with similar different stimuli. The studies which are in the literature demonstrate the application of behavioral learning principles to the problems involved in programming for generalized stimilus control. The literature suggests the simplest approach

to teaching a youngster to ignore irrelevant stimuli is to keep the basic relevant descriminative stimuli for the target behavior constant and gradually introduce a number of different distracting stimuli into the training or teaching setting by consistent reinforcement of the target behavior only when the relevant and correct stimuli are present. Regardless of the presence or the absence of the distracting stimuli, the youngster will learn to ignore the distractions and focus on the correct or relevant stimuli.

An example of this procedure was reported by Gooch and Ebner (1968). Following successful development of academic behaviors in a special training room, a series of distracting stimuli was introduced. This included a television and other children. Eventually, training was transferred to the classroom. The intent of these procedures was to establish and maintain control of classroom behavior by academic stimuli such as text, worksheets, etc. In Project ADVANCE, youngsters are allowed to decorate their individual carrel with the use of pictures from magazines and include other non-educational objects in the shelf. In some cases, students have radios readily available and other magazines and books not pertinent to the academic instruction. Here, the youngsters were taught to perform the same behaviors in the presence of similar or slightly different stimuli. That is, the youngster learned that there are a number of stimuli associated with the teaching situation that are supposed to set the occasion for doing academic work. These equivalent stimuli would include

the teacher, the desk, the chair or academic materials which are present in each setting, even though the desk, chairs, books, papers may be slightly different in each setting and even though there are other distracting objects not commonly found in the academic environment. This Project ADVANCE procedure is an example of a special form of a stimulus control instruction in which the youngsters receive direct training with the range of "correct stimuli" for the target behavior. Another further advantage of the Project ADVANCE setting is that generalization is promoted also through motivation needs. Because Project ADVANCE is within a vocational LEA, these motivational variables may not commonly be found within a regular local educational agency. Motivational variables effect both the acquisition or new learning as well as maintenance of that which is learned. In the kind of behavioristic system, Project ADVANCE follows, the question of motivation becomes a question concerning the effectiveness of reinforcers. Let me be more explicit about the interaction between condition reinforcers and behavioral development. When the Project Design was finally developed, the youngsters motivational deficiency was challenged by selecting largely reinforcers such as the consumable items determined by student interest surveys. During this same period of time, students were asked about career aspirations and occupational interests in the Pre-vocational skills area. Students tended to identify with either

the training areas at the Young Center (a program for employment orientation students having seven(7) occupational areas) or the Vocational Technical Career Center (a regular share-time day school with nineteen(19) occupational areas). Therefore, in the final construction of contingency management contracts, we propose what Lovass(1975) states that there are two kinds of operants. Thus, we talk about extrinsic or social operants where other people control the reinforcer and hence shape and maintain the behavior. Then we talk about self-stimulatory operants when the reinforcer for group of responses is completely controlled by the person himself. We found that students readily identified reinforcers in these occupational areas. This was incorporated within the contingency management contract as a possible stimulus for behavior control. As was stated earlier, each occupational area is profiled in such a manner that students could be told specifically what kinds of behaviors and what type of consistency is needed in these behaviors for the student to enter a partially mainstreamed educational program. Attendance also is a key part in the conteingency management contract.

Summary

Let me conclude by briefly mentioning what we see as some of the significant contributions of the behavioral approach to the understanding, treatment and a generaliztion of behaviors in other environments for severely emotionally disturbed youngsters:

1. The primary contribution from which everything else derives is the methodology used by the behavior instructors when they work with emotionally disturbed youngsters. One key component of this methodology is measurement. That is the precise specification of the therapeutic intervention used and the behavior changes observed through experimentation and manipulation of treatment variables in assessing the causual status and determine the replicability of the effects.

2. The establishment of many appropriate behaviors including eye contact, affectionate responses, academic skills and recessive and expressive language is feasible to many emotionally disturbed youngsters through the use of imitation, prompting, shaping and differential operations.

3. The education of emotionally disturbed youngsters in classroom environments approximating behaviors of less severely emotionally disturbed and normal youngsters has become imminently feasible. It is now possible to teach meaningful academic skills to emotionally disturbed youngsters in a relatively efficient and economical manner. Further knowledge of exactly what parents and teachers must be able to do and improve methods of training parents and teachers will undoubtedly lead to radical changes in society's approach to the treatment of emotionally disturbed youngsters.

4. Ignorance of motivational variables may be a major

deterrent to the development of more optimal treatment programs at present. The partial reliance on experimental reinforcers and the building of more normal everyday ones probably accounts for much of the response and stimulus specificity must be associated with our therapeutic accomplishments to date. Such specificity requires that considerable attention be given to the redesign of the youngster's post-treatment environment in order to prevent reversals of treatment gains.

6. Students must practice newly acquired behaviors in a number of different settings and environments. For generalization to occur from the training situation to different enviornments, it must be practiced and reinforced in those diverse environments. In addition, various groups of people such as noted in the educational team concept, such as peers and parents, should be trained to deliver appropriate reinforcement across a variety of settings.

7. As was stated earlier, generalization must be programmed and not expected. Since programming involves a gradual succession of therapeutic steps, time is an essential component in any management process. When stimulus conditions have been altered, there are bound to be some initial increases in inappropriate behavior or decreases in appropriate behavior. Changes agents must be prepared for these events and must be continually programmed until the behavioral again comes under control in the new setting. Occupational

or classroom settings where emotionally disturbed students are mainstreamed, the teacher must help the youngster establish his/her own reinforcers. In order for reinforcers to either increase or decrease the occurrance of a behavior, they must have some value to the individual obtaining them. If a youngster has opportunities to select what his/her own reinforcers will be, the teacher can dispense with the usual trial and error method of finding the effective contingencies of reinforcement.

8. If there is one rule that should be judiciously applied, not only for generalization measure, but for all behavior management techniques it is consistency. Several inadvertent reinforcements of undesirable behavior in new environments will merely extend the reinforcement schedule and make the inappropriate behavior more resistent to further erradication efforts. It is imperative that the emotionally disturbed youngster come to understant that his/her behavior, or lack of it, will be treated similarly in diverse environments within the training setting as well as without.

9. Employing token economy programs or for developing new behaviors, the staff should plan to fade the token reinforcement and help youngsters develop self-administered reinforcements systems. Model programs, such as Project ADVANCE, should be closely examined by teachers comtemplating the use of token

economy programs. The students in such programs, should have increasing amounts of input in selecting reinforcers, establishing criteria and in determining availability of earning reinforcement for him/herself. With a dynamic changing economy, the reinforcing system does not loose its potency when student interest remains keen. Thus, backup reinforcers will obtain their reinforcing properties in different settings.

Although we have touched on a variety of topics relating to emotionally disturbed youngsters, I am sure we have failed to mention alot of interesting and important work that could have been possibly discussed. However, given the time frame that we have, it is my hope that some light has been shed on the need for generalization in behavior modification programs and mainstreaming.

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RATIONALE: THE INCOMPATIBLE USE OF SUGAR ITEMS AS CONSUMABLE REINFORCERS IN THE BEHAVIOR MODIFICATION MANAGEMENT SYSTEM AT PROJECT ADVANCE

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In today's medical science, there is little doubt that emotional illnesses are related to the chemical status of the body. The problems that the body may be having in handling sugar in regard to the relation to these illnesses has become a primary concern. Great leaders in orthomolecular psychiatry such as Dr. A. Hoffer, Dr. Allan Cott, and Dr. A. Chirkin, as well as Dr. Linus Pauling, have stated that "mental illness is a myth and that emotional disturbances can be merely the first symptom of the obvious inability of the human body to handle the stress of sugar dependency".[1]

The complete symptoms of psychosis, medical science now knows, can be produced by a diet too high in sugar and caffeine, when coupled with life situations which involve too much stress. In psychiatric patients, ranging from neurotics to psychotics, and in many children with hyperactivity, behavioral problems, learning difficulties, and autism, sugar "has been found to be both physiologically and mentally extremely disturbing".[2] In addition, adding generous amounts of sugar to an otherwise balanced diet has been found to cause symptoms which are almost indistinguishable from those of severe neurosis.

The part that low blood sugar plays in lessening or increasing the symptoms of neurosis and psychosis and in adding to the problems of the schizophrenic have been until recently largely neglected. Thus, despite the fact that investigation into the dietary history of schizophrenics has repeatedly revealed that their choice of diets is rich in sweets, candy, cakes, coffee, caffeinated beverages, and foods prepared with sugar.[3]

Dr. Harry Salzer, medical director of a foundation dedicated to research in hypoglycemia, states that functional hyperinsulism (low blood sugar) is a major cause of neuro-psychiatric illness. He gives a figure of about forty percent as representing "the approximate frequency with which functional hyperinsulism should be found in neuro-psychiatric practice".[4]

As a food, there has been much dispute over the value of sugar. Dr. Fredericks, an internationally known nutritionist, has stated, "No form of sugar is good food...man has no physiological need for sugar...ancient man was filled with energy though he had no sugar bowl".[5]

Dr. Fredericks is in agreement with a famous physician who practices the science of nutrition who "has seriously proposed that a law be passed forbidding the sale of sweet foods and drinks within any school!"[6]

It is interesting also that research with hyperactive and psychotic children and also those with brain injuries and learning disabilities has shown that they have (1) an abnormally high family history of diabetes--that is, parents and grandparents who cannot handle sugar, (2) an abnormally high incidence of low blood glucose, or functional hypoglycemia in the children themselves, which indicates that their systems cannot handle sugar, (3) dependence on a high level of sugar in the diets of the very children who cannot handle it.[7]

One can understand why many American children and adults have difficulty with sugar problems. The average intake of sugar per year is 120 lbs., or one and one third teaspoons every thirty five minutes, 24 hours a day. The body reacts in three basic ways to this sugar overload. (1) It bears the overload somehow, (2) There is an exhaustion of the capacity of the body to handle that much sugar, causing diabetes, (3) The body becomes over-sensitized to the sugar. In this case, the body begins burning it up too fast. This is the condition called low blood sugar. The body overproduces insulin, which burns up too much of the sugar in the blood, causing a deficit. This is the opposite of diabetes, where the insulin is not sufficient to burn the blood sugar at the proper rate, leaving too much sugar in the blood.

Contributing to the sugar problem is a lack of vitamins and minerals which may be present in the child or adult. Refined white sugar enters the body in a "naked" or "empty" form, without the vitamins and minerals to metabolize. Therefore, it draws on the body's reserves of these two nutrients, acting as a drain. The result is often fatigue and weakness after a short period.

Dr. John Tintera, an important researcher in sugar-related problems, has stated that if a child was given a glucose tolerance test at important periods of his development, such as at birth, when beginning school, and at adolescence, much could be learned. He feels that parents and physicians could be alerted of possible problems and all "could save innumerable hours and small fortunes

spent in looking into the child's psyche and home environment for maladjustments of questionable significance in the emotional development of the average child."[8]

There has never been any scarcity of emotional symptoms caused by hyperglycemia or hypoglycemia. One doctor who treated 1,000 patients with low blood sugar made a chart of their symptoms and the percent that complained of each symptom. Of the forty-one symptoms he recorded, these were the top five: Nervousness - 94%; Irritability-89%, exhaustion - 87%; faintness, dizziness - 86%; depression - 77%.

That low blood sugar can change one's personality is easy to accept when one remembers how dependent the brain and the nervous system are on a continuous and even, small supply of sugar. Sugar is the brain's only food. Three times each minute the brain conducts a series of chemical reactions during which sugar is converted into energy. This process is known as the Krebs cycle. This cycle can become a vicious one when emotional problems and stress are introduced into the picture.

Man has really two brains. The outer brain is like the shell of a walnut, enclosing the inner brain. This outer brain, called the cortex (which means "bark") is the thinking part of the brain. This thinking part developed relatively late in the evolution of man.

The inner brain, called the thalamus, is the primitive brain. This is the brain with which the baby is born, his outer cortex being largely undeveloped at that stage. The thalamus is the selfish brain, always saying: "I want, I hate, I don't care, etc." The outer brain, as it begins to develop gradually, starts to acquire control over the inner brain, making it act in a civilized manner.

The inner brain also controls the autonomic functions of the body, like breathing, heartbeat, itc. The outer brain controls the voluntary muscles, almost all stimulation reaching the thinking brain must first pass through the inner brain.

An argument between these two brains can be a cause of low blood sugar, which will then upset <u>both</u> brains. For example, if you have an irritating mother-in-law living with you, the inner brain might say "kick her out", while the cortex brain says, "She <u>is</u> my wife's mother". If the inner brain is unable to get his way by making the outer brain respond, he may decide to turn his anger and

and rage inward. He will then over-stimulate internal nerves and muscles. The adrenal gland then feels it has to become over-active to keep the body ready for fight or flight. This elevates blood pressure. The adrenal glands cause attacks of anxiety, drawing sugar from reserves and feeding it into the blood. The pancreas now has to make insulin to keep the sugar level down to normal. Thus, a vicious cycle begins. In the effort to raise blood sugar, the hormones produce anxiety, and this leads to further manufacturing of more low blood sugar.

In conclusion, the ends of low blood sugar in children has been succinctly summarized by Dr. Joseph Wilder, of New York, a specialist in psychiatry and neurology. Dr. Wilder states that because of low blood sugar:

> The development of the brain may be retarded, stopped, altered....The child may be neurotic, psychopathic, and be subject to anxieties, running away tendencies, aggressiveness, a blind urge to activity and destructiveness, with impairment of moral sensibilities. In its simplest form, it is a tendency to deny everything, contradict everything, refuse everything, at any price.[9]

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FOOTNOTES

[1]William Dufty, Sugar Blues (New York: Warner Books, 1976.), p. 62.

[2]Carlton Fredericks, New and Complete Nutrition Handbook (Canoga Park, California: Major Books, 1976), p.155.

[3]Dufty, op. cit., p. 64.

[4]Carlton Fredericks, Look Younger, Feel Healthier (New York: Grosset & Dunlap, 1976), p.31.

[5]Fredericks, op. cit., p. 258.

[6]Ibid., p.161.

[7]Dufty, op. cit., pp.63-64.

[8]Ibid., p. 71.

[9]Dr. E. Cheraskin, Psycho-Dietetics (New York:Bantam Books, 1974), p.77.